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ABSTRACT

Library research skills are included in a required graduate level research methods course offered at Bowling Green State University (Ohio). The course--Biological Documentation Techniques--is broadly involved with biological literature retrieval, bibliographic techniques, and data storage. It is taught cooperatively by the Department of Biological Sciences and the Science Library with approximately one third of the class sessions taught by a science reference librarian; the other sessions are taught by a biological sciences faculty member. Topics addressed by biological sciences faculty include information about funding and proposal preparation, scientific writing, and the publication process. Topics covered by the librarian include library services, the structure of scientific literature, and both online and manual searching strategies. Students are encouraged to carefully evaluate the most appropriate method of information retrieval for their interests and purposes, and they learn about boolean logic, system-specific and terminal-specific procedures, Bibliographic Research Services (BRS) and DIALOG protocols, and selected biomedical databases. After students engage in a "canned" search, they conduct their own research projects. All searching costs are absorbed by Department of Biological Sciences teaching funds. (SD)

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INTRODUCING END-USER SEARCHING THROUGH COURSE SYLLABI

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INTRODUCING END-USER SEARCHING THROUGH COURSE SYLLABI

Many academic departments attempt to incorporate library research skills into departmental curricula. Rather than forming a separate course, library research skills are often included in the department's basic research methods course. Similar to programs at many other colleges and universities, the Department of Biological Sciences at Bowling Green State University in Bowling Green, Ohio offers a required upper level research methods course. This course is entitled "Biological Documentation Techniques" and is broadly involved with biological literature retrieval, bibliographic techniques, and data storage. This course has been designed and is taught through the cooperation and expertise of the faculty of the Department of Biological Sciences and the Science Library. Approximately on third of the scheduled class sessions are conducted by a science reference librarian. The remaining sessions are conducted by a biological sciences faculty member.

The topics addressed by the biological sciences department faculty member include funding and proposal preparation, scientific writing, illustration, and the process of publication. The topics addressed by the science reference librarian include science library services, the structure of scientific literature, literature searching strategies, and computer searching.

One of the major stated objectives of this course offered at Bowling Green is to introduce upper level students to computerized bibliographic searching and

ultimately to end-user computer searching. Students are not only exposed to the concept of computer searching, they are also given hands-on searching experience. Ultimately, each student must select a topic, preferably within his or her research area, set up a search strategy and actually perform the online search. It is stated that the objective of the course is not to produce fully trained database searchers. Rather, the objective of the course is to provide an introduction to, and hands-on experience with, a wide range of library research tools. Students are expected to demonstrate a basic knowledge and understanding of manual and online library research collections. Philosophically and practically, the Science Library and the Department of Biological Sciences at Bowling Green have established a policy which does not differentiate between manual and online research resources. Therefore, graduate students are equally exposed to manual and online sources.

Of the six, two hour class sessions which directly address library skills, three are devoted to traditional or printed library resources. The scientific publication cycle is presented. The informal or invisible college network is thoroughly discussed. The progression from conference papers through technical reports, journal articles, annual reviews, monographes, and bibliographies is carefully described.

The three remaining class sessions involve computer searching. The first class session provides an overview of computer searching. Computer searching is compared to searching printed indexes. Advantages and disadvantages

of searching online and printed indexes are presented. The organizational structure of computer searching is also discussed. Relationships between database producers, commercial vendors, and telecommunication organizations are analyzed. Most of this first class session, however, involves a discussion of boolean logic. It is widely assumed that an understanding of boolean logic is fundamental to computer searching. The second two hour class session devoted to computer searching is focused on system specific and terminal specific procedures. Basic BRS and DIALOG protocol, sign-on procedures, and commands are reviewed. Descriptions of applicable and relevant databases are included. Particular attention is paid to BIOSIS, MEDLINE, and other selected biomedical databases. Subject coverage of journal indexing within particular online files is discussed.

Every student is also required to conduct a "canned" search before they perform a search on their own research topic. The students are expected to complete this exercise between the second and third class sessions involving computer searching. The purpose of this "canned" search is to provide basic familiarity with the mechanics of online searching. The "canned" search is designed so that each student is exposed to the basic components of online searching. It is assumed that the need for this exercise varies among students. While many students are computer literate, many are computer illiterate. The "canned" search provides an initial exposure to the computer hardware in an unpressured situation. Also, basic boolean logic exercises are included as demonstrations. The "canned" search strategy is designed to demonstrate an ideal search. Complications are controlled as much as possible. While

unexpected system and telecommunications interuptions could not be controlled, search results are predetermined and designed to illustrate specific points. This exercise is particularly useful in practically demostrating in real terms the theoretical concepts involved in boolean logic. It has been demonstrated that most students profit from this exercise.

From the commencement of graduate study, each student is encouraged to develop an interest or project in preparation for further graduate study and research. While the third computer searching class session provides a formal opportunity for consultation, students are expected to begin formulating specific interest areas well before this class period. As a result, each student should be prepared to consult with the science reference librarian in order to analyze research topics and establish search strategies. A thorough discussion of the "canned" search exercise is also included in this session. Following this discussion, students individually consult with the science reference librarian concerning their own search topic. If needed, the research topics are adjusted and refined. Ultimately, each student's research topic is translated into a computer search statement. Subsequently, each search statement is broken down into subconcepts and search strategies are established. At the conclusion of this class session, each student should have identified a research topic, constructed an appropriate computer search statement, and prepared a probable search strategy. The students are now prepared to perform their online search.

After the library class sessions and the "canned" search exercise are

completed, each student schedules an appointment to conduct the computer search. As stated earlier, each student is expected to actually perform his or her computer search. However, while the students are expected to perform the search unaided, a librarian is available if needed. In most cases, the librarian's assistance is required. However, the level of assistance varies greatly. The two factors which affect the required assiatance level are the complexity of the search statement and the individual student's level of computer literacy.

As the course is officially offered through the Department of Biological Sciences, all costs are absorbed by the department. Therefore, all searching costs incurred during the "canned" search exercise and the actual search itself are paid through departmental teaching funds.

Following the completeion of the online searches, each student is required to analyze the search process and search results. In a written report, they are asked to include the statement of their search topic, the database, and the years searched. A description of the search follows. Each search statement is listed and described. The results of each statement are analyzed. The purpose of this written report and search analysis is to demonstrate the student's understanding and comprehension of the computer search process. Each student is asked to list the total number of citations retrieved in the final result set. Then, each student is asked to measure the percentage of relevant citations versus the percentage of irrelevant citations. They are also asked to compare computer search results with

prior manual searching of parallel printed indexes. Finally, they are asked to describe the advantages and disadvantages of conducting a computer search on their own topic. They are also asked to decide whether a manual or computer search is more appropriate for their own research interest.

Throughout the course, online searching is presented as a possible and viable alternative to manual information retrieval techniques. The course and the instructors do not, at any point, attempt to market or merchanize online searching unilaterally over manual searching. As much as possible, online searching is presented as a routine method of information retrieval. As much as possible, online searching is presented as one of many available library resources or tools. During the course, students are urged to carefully investigate and select the most appropriate method of information retrieval for their own research interests.

As stated earlier, the purpose of this course is not to produce fully trained online searchers. Rather, the purpose of the course is to provide exposure to and hands-on experience with a wide range of library resources in the context of scientific research. The description of the research process, including manual and online library applications, is the central purpose of this course.